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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,088	07/15/2003	Aaron L. Butters	11336/276 (P02053US)	9267
757	7590	02/28/2006	EXAMINER	
BRINKS HOFER GILSON & LIONE P.O. BOX 10395 CHICAGO, IL 60610			BRINEY III, WALTER F	
			ART UNIT	PAPER NUMBER
			2646	

DATE MAILED: 02/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/621,088	BUTTERS ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Walter F. Briney III	2646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

1) Responsive to communication(s) filed on 15 July 2003.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

4) Claim(s) 1-68 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-20,23-38,41-48 and 51-68 is/are rejected.  
 7) Claim(s) 21,22,39,40,49 and 50 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 15 July 2003 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### **Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### **Attachment(s)**

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 01/08/2004.

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. **Claim 55 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

**Claim 55** depends from itself, which is impossible. Instead, claim 55 is interpreted to depend from claim 54.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1-4, 6-9, 11-14, 16, 19, 20, 24-30, 32, 34, 37, 38, 41-43, 45-48, 52-58 and 60 are rejected under 35 U.S.C. 102(b) as being anticipated by Gabr (US Patent 4,379,951).**

**Claim 1** is limited to “a loudspeaker.” Gabr discloses an electro-acoustic transducer means. See Abstract. As seen in figure 22, Gabr discloses a “transducer” that comprises a transducer including, at least, diaphragm 140, inner surround 142, and voice coil 146. See column 9, lines 51-61. The transducer described above is combined with a “passive radiator” including, at least, diaphragm 141, intermediate <sup>lines</sup> surround 142 and outer surround 142. See column 10, ~~lines~~ 10-12. Gabr discloses that

the two diaphragms 140 and 141 are mounted on separate chassis 144 and 145, respectively. See figure 24. In reading figure 24, note the following: the figure does not illustrate element 140, inner surround 142 or voice coil 146; the figure mislabels intermediate surround and outer surround 142 as element 145; the figure does not illustrate element 144, it would be mounted to the post 145 that is proximate the central axis of the speaker. It is submitted that coupling two diaphragms coaxially while using two chassis as disclosed inherently, mechanically isolates the diaphragms. Further, Gabr discloses that the two diaphragms 140 and 141 are used independently, evidencing their mechanical isolation. See column 10, lines 19-21. Therefore, Gabr anticipates all limitations of the claim.

**Claim 2** is limited to “the loudspeaker of claim 1,” as covered by Gabr. The transducer diaphragm 140 is circular, and has an “outside perimeter.” The perimeter is coupled to inner post 145, which corresponds to “a support mechanism.” The passive radiator diaphragm 141 is annular, and has an “inside perimeter.” The inside perimeter is coupled to an “inside surround” 142, which is connected to inner post 145. Figure 22 indicates that the annular diaphragm 141 completely encloses the outside perimeter of the transducer. Therefore, Gabr anticipates all limitations of the claim.

**Claim 3** is limited to “the loudspeaker of claim 2,” as covered by Gabr. As seen in figure 22, “every location” on the outside perimeter of diaphragm 140 is enclosed by the inner perimeter of diaphragm 141. Therefore, Gabr anticipates all limitations of the claim.

**Claim 4** is limited to “the loudspeaker of claim 1,” as covered by Gabr. Gabr depicts that the transducer including diaphragm 140 is coupled to an inner post 145. Inner post 145 corresponds to “a support mechanism” and is connected to an outer post 145, which corresponds to “a speaker enclosure” as seen in figure 24. The passive radiator 141 is clearly coupled to both the support mechanism and the speaker enclosure. Therefore, Gabr anticipates all limitations of the claim.

**Claim 6** is limited to “the loudspeaker of claim 1,” as covered by Gabr. Figure 22 depicts a transducer that includes diaphragm 140, wherein the transducer is mounted on an inner post/“support mechanism” 145. “Passive radiator” 141 is annular and comprises both an “inner perimeter” and an “outer perimeter,” both of which are coupled to respective “inner” and “outer surrounds” 142. The inner surround is connected to the inner post/“support mechanism” 145 and the outer surround is connected to an outer post/“frame” 145. Therefore, Gabr anticipates all limitations of the claim.

**Claim 7** is limited to “the loudspeaker of claim 6,” as covered by Gabr. Figure 22 clearly depicts that the “inside perimeter has a circular shape.” Therefore, Gabr anticipates all limitations of the claim.

**Claim 8** is limited to “the loudspeaker of claim 7,” as covered by Gabr. Figure 22 clearly depicts that the “transducer has a circular shape.” Therefore, Gabr anticipates all limitations of the claim.

**Claim 9** is limited to “the loudspeaker of claim 6,” as covered by Gabr. Figure 22 clearly depicts that the “outside perimeter has a circular shape.” Therefore, Gabr anticipates all limitations of the claim.

**Claim 11** is limited to “the loudspeaker of claim 1,” as covered by Gabr. The transducer including diaphragm 140 inherently has a “low frequency range.” Therefore, Gabr anticipates all limitations of the claim.

**Claim 12** is limited to “the loudspeaker of claim 11,” as covered by Gabr. It is noted that although the transducer including diaphragm 140 may not resonate or even be optimized to reproduce such frequencies, the diaphragm will inherently vibrate “below 50 Hz.” Therefore, Gabr anticipates all limitations of the claim.

**Claim 13** is limited to “the loudspeaker of claim 1,” as covered by Gabr. The transducer including diaphragm 140 inherently has a “midrange frequency range.” Therefore, Gabr anticipates all limitations of the claim.

**Claim 14** is limited to “the loudspeaker of claim 13,” as covered by Gabr. It is noted that although the transducer including diaphragm 140 may not resonate or even be optimized to reproduce such frequencies, the diaphragm will inherently vibrate “in the range of about 40 Hz to about 2800 Hz.” Therefore, Gabr anticipates all limitations of the claim.

**Claim 16** is limited to “a loudspeaker.” As illustrated in figure 24, the outermost normal projection from “a back side” 145 completely encloses all speaker elements, and corresponds to “a frame.” The back side includes a normal projection that is proximate the central axis of the speaker. This projection corresponds to “a support mechanism.” As seen in figure 22, a transducer that includes a chassis 144 (not shown in figure 24) is connected to the support mechanism 145. A passive radiator 141 is annular, and thus, has an “inside perimeter.” The inside perimeter of radiator 141 is connected to the

support mechanism and encloses all points of the transducer. The radiator 141 is also connected to the frame as seen in figure 24. Therefore, Gabr anticipates all limitations of the claim.

**Claim 19** is limited to “the loudspeaker of claim 16,” as covered by Gabr. As seen in figure 24, the inner post 145 extends from a bottom 145 to a “base” where the surrounds of the transducer and radiator couple. In this way, the inner post 145 corresponds to a “support mechanism”. Therefore, Gabr anticipates all limitations of the claim.

**Claim 20** is limited to “the loudspeaker of claim 19,” as covered by Gabr. Figure 22 illustrates that the base “conforms to the shape of the transducer” and “conforms to the shape of the passive radiator.” Therefore, Gabr anticipates all limitations of the claim.

**Claims 24-30 and 32** respectively recite essentially the same limitations as claims 11-14, 6, 7, 9 and 3 and are rejected for the same reasons.

**Claims 34, 38 and 41-43** respectively recite essentially the same limitations as claims 16, 20 and 28-30 and are rejected for the same reasons.

**Claim 37** is limited to “the enclosure assembly of claim 34,” as covered by Gabr. As seen in figure 24, the inner post 145 extends from a bottom 145 to a “base” where the surround radiator couples. In this way, the inner post 145 corresponds to a “support mechanism”. Therefore, Gabr anticipates all limitations of the claim.

**Claim 45** is limited to “the enclosure assembly of claim 1,” as covered by Gabr. The passive radiator diaphragm 141 is annular, and has an “inside perimeter.” The

inside perimeter is coupled to an “inside surround” 142, which is connected to inner post 145. Figure 22 indicates that the annular diaphragm 141 completely encloses the outside perimeter of the inner post 145. Therefore, Gabr anticipates all limitations of the claim.

**Claims 46, 52-58 and 60** respectively recite essentially the same limitations as claims 16, 11-14, 6, 7, 9 and 3, and are rejected for the same reasons.

**Claim 47** is limited to “the speaker assembly of claim 46,” as covered by Gabr. The innermost beam 145 corresponds to a “support element” connected to an “lower base” 145 formed along the bottom of figure 24 and connected to an “upper base” that caps beam 145 and holds surrounds 142 in place. As seen in figure 22, the outer perimeter of the transducer including diaphragm 140 is connected to the upper base, and is “held” up by the lower base. Therefore, Gabr anticipates all limitations of the claim.

**Claim 48** is limited to “the speaker assembly of claim 47,” as covered by Gabr. Figure 22 indicates that the upper base conforms to the shape of the circular transducer 140 and the passive radiator 141. Therefore, Gabr anticipates all limitations of the claim.

3. **Claims 1, 2, 4, 5, 6, 11-17, 23-28, 33, 34, 35, 41, 46, 52-56, 61-63 and 65-68 are rejected under 35 U.S.C. 102(b) as being anticipated by <sup>Kasajima et al (US 5,432,860) &</sup> Gabr (US Patent 4,370,951).**

**With respect to claims 1, 2, 4, 5, 6, 11-17, 23-28, 33, 34, 35, 41, 46, 52-56, 61-63 and 65-68,** Kasajima discloses a speaker system in figure 9. The system includes a “transducer” 54 coupled to a “support mechanism” 48 that is coupled by way of an

“inner surround” (portion of 52-1 closest to 48) to an “inner perimeter” of “passive radiator” 50-1. The passive radiator is coupled at an “outer perimeter” to a “frame” 46R by way of an “outer surround” (portion of 52-1 furthest from 48). The frame makes up a part of a “speaker enclosure.” The sounds 112B emitted by the radiator 50-1 are lower in frequency than those sounds 109 emitted by speaker 54. See column 4, lines 53-56. Therefore, Kasajima anticipates all limitations of the claims.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 5, 10, 17, 18, 23, 31, 35, 36, 44, 51 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gabr.**

**Claim 5** is limited to “the loudspeaker of claim 1,” as covered by Gabr. It is noted that Gabr anticipates a transducer with diaphragm 140, surround 142, and voice coil 146. However, Gabr fails to anticipate a transducer with a “cone.” However, this deficiency is overcome by an obvious modification.

In particular, it is noted that figure 22 is completely silent as to the manner in which voice coil 146 is coupled to transducer 140. Figures 24 and 25, while generally related to figure 22, fail to accurately depict a diaphragm 140, and thus, fail to anticipate the claim. As such, one of ordinary skill must either build or use a known transducer

with a diaphragm and voice coil to realize the invention of Gabr. Gabr does teach a known transducer in figure 1. The transducer includes: a voice coil 7; a flat, circular diaphragm 55; "transducer surround" 9; "transducer frame 3" and a "cone" 6. The transducer of figure 1 is mounted on the "support mechanism" 144 of figure 22.

It would have been obvious to one of ordinary skill in the art at the time of the invention to construct an active transducer in accordance with figure 2 of Gabr simply because Gabr fails to identify the type of transducer to use in the assembly of figure 22.

**Claim 23** is limited to "the loudspeaker of claim 16," as covered by Gabr. This claim recites essentially the same limitations as claim 5, and is rejected for the same reasons.

**Claim 51** is limited to "the loudspeaker assembly of claim 47," as covered by Gabr. This claim recites essentially the same limitations as claim 5, and is rejected for the same reasons.

**Claims 10, 17, 18, 31, 35, 36, 44 and 59** all generally recite the shape of either the outer perimeter of the passive radiator or the speaker enclosure. Although Gabr fails to disclose the shapes as recited, mere differences in shape where that shape does not provide any nonobvious function or advantage is not an invention. See *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

It would have been obvious to one of ordinary skill in the art to shape the outer perimeter and the speaker enclosure as recited simply because changing a shape would have been obvious absent any persuasive evidence that the particular claimed configuration is significant.

**5. Claims 15, 33 and 61-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gabr in view of Kasajima et al. (US Patent 5,432,860).**

Claim 15 is limited to “the loudspeaker of claim 1,” as covered by Gabr. It is noted that Gabr fails to disclose how each diaphragm 140 and 141 is tuned in terms of frequency response. Therefore, Gabr fails to anticipate all limitations of the claim, specifically, “where the passive radiator resonates at an acoustical frequency below a cutoff frequency for the transducer.” However, this is overcome by an obvious modification.

In particular, it is known in the art to provide an active transducer and a pneumatically driven passive radiator in a single enclosure, thus providing bass-reflex. The pneumatic motion within the enclosure, as caused by the motion of the active transducer, drives the passive radiator. One such example is provided in figure 9 of Kasajima. In effect, two radiators, each tuned to a specific frequency range, may be provided within a single enclosure. Because there is only one transducer, there is no need for a crossover network. Also, the passive radiator is tuned to resonate at bass frequencies, creating a larger bass response. See column 1, lines 4-68, and column 4, lines 53-56.

It would have been obvious to one of ordinary skill in the art to use a transducer combined with a passive radiator within a single enclosure to provide bass reflex as taught by Kasajima, where the use of bass reflex eliminates the need for signal processing while providing two radiators that are tuned to different frequency ranges, resulting in increased bass response.

**Claim 33** recites essentially the same limitations as claim 15, and is rejected for the same reasons.

**Claim 61** recites essentially the same limitations as claim 15, and is rejected for the same reasons.

**Claim 62** is limited to “a method for extending the bass response in a loudspeaker.” As shown in the rejection of claim 1, it was known to perform the “integrating” and “mechanical isolating” as claimed. Also, it was shown in the rejection of claim 5 that it was known to resonate a passive radiator pneumatically with the energy created by a transducer integrated therewith. Therefore, Gabr in view of Kasajima makes obvious all limitations of the claim.

**Claims 63-65, 67 and 68** respectively recite essentially the same limitations as claims 2, 3, 15, 11 and 13, and are rejected for the same reasons.

**Claim 66** is limited to “the method of claim 62,” as covered by Gabr in view of Kasajima. Although not explicitly disclosed by Gabr, the innermost beam 145 will inherently “translate vibrations” as claimed. Therefore, Gabr in view of Kasajima anticipates all limitations of the claim.

### ***Allowable Subject Matter***

The following is a statement of reasons for the indication of allowable subject matter:

6. **Claims 21, 22, 39, 40, 49 and 50** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Claim 21** is limited to “the loudspeaker of claim 19,” as covered by Gabr. There is simply no indication within the disclosure of Gabr that there are “four support elements.” Furthermore, there is no suggestion or motivation to provide four supports within the prior art. Thus, claim 21 is allowable over the cited prior art.

**Claim 22** is limited to “the loudspeaker of claim 19,” as covered by Gabr. There is simply no indication within the disclosure of Gabr that there are “three support elements.” Furthermore, there is no suggestion or motivation to provide three supports within the prior art. Thus, claim 21 is allowable over the cited prior art.

**Claims 39 and 40** respectively recite essentially the same subject matter as claims 21 and 22, and thus, are allowable over the cited prior art for at least the same reasons.

**Claims 49 and 50** respectively recite essentially the same subject matter as claims 21 and 22, and thus, are allowable over the cited prior art for at least the same reasons.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F. Briney III whose telephone number is 571-272-7513. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WFB



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SUPERVISORY PATENT EXAMINER